

Ballfields Parcels at DoDHF Novato, CA
Data Validation Reports
LDC# 13575

Gasoline Range Organics

LDC

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA
Collection Date: April 6, 2005
LDC Report Date: June 14, 2005
Matrix: Soil
Parameters: Gasoline Range Organics
Validation Level: NFESC Level III
Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502497

Sample Identification

TO63-R2-SB04-0-0.5	TO63-R2-SB02-0-0.5MS
TO63-R2-SB04-3-4	TO63-R2-SB02-0-0.5MSD
TO63-R2-SB01-0-0.5	
TO63-R2-SB01-0-0.5 Dup	
TO63-R2-SB01-1-2	
TO63-R1-SB04-0-0.5	
TO63-R1-SB04-4-5	
TO63-R1-SB01-0-0.5	
TO63-R1-SB03-0-0.5	
TO63-R1-SB03-4-5	
TO63-R4-SB04-0-0.5	
TO63-R4-SB04-4-5	
TO63-R5-SB04-0-0.5	
TO63-R5-SB04-5-6	
TO63-R5-SB02-0-0.5	
TO63-R5-SB02-3-4	
TO63-R5-SB01-0-0.5	
TO63-R5-SB03-0-0.5	
TO63-R2-SB03-0-0.5	
TO63-R2-SB02-0-0.5	

Introduction

This data review covers 22 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
KWG0505640-4	4/11/05	Gasoline range organics	1.5 mg/Kg	All samples in SDG K2502497

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-R2-SB04-0-0.5	Gasoline range organics	0.89 mg/Kg	2.5U mg/Kg
TO63-R2-SB04-3-4	Gasoline range organics	1.8 mg/Kg	5.1U mg/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-R2-SB01-0-0.5	Gasoline range organics	1.1 mg/Kg	3.4U mg/Kg
TO63-R2-SB01-0-0.5 Dup	Gasoline range organics	1.1 mg/Kg	3.0U mg/Kg
TO63-R2-SB01-1-2	Gasoline range organics	1.4 mg/Kg	4.7U mg/Kg
TO63-R1-SB04-0-0.5	Gasoline range organics	1.1 mg/Kg	2.9U mg/Kg
TO63-R1-SB04-4-5	Gasoline range organics	1.5 mg/Kg	4.9U mg/Kg
TO63-R1-SB03-0-0.5	Gasoline range organics	1.1 mg/Kg	2.7U mg/Kg
TO63-R1-SB03-4-5	Gasoline range organics	1.2 mg/Kg	4.0U mg/Kg
TO63-R4-SB04-4-5	Gasoline range organics	1.4 mg/Kg	4.6U mg/Kg
TO63-R5-SB04-5-6	Gasoline range organics	1.6 mg/Kg	4.3U mg/Kg
TO63-R5-SB02-3-4	Gasoline range organics	1.5 mg/Kg	4.8U mg/Kg
TO63-R5-SB01-0-0.5	Gasoline range organics	0.91 mg/Kg	2.8U mg/Kg
TO63-R5-SB03-0-0.5	Gasoline range organics	0.84 mg/Kg	2.5U mg/Kg
TO63-R2-SB03-0-0.5	Gasoline range organics	1.3 mg/Kg	3.2U mg/Kg
TO63-R2-SB02-0-0.5	Gasoline range organics	1.5 mg/Kg	4.2U mg/Kg

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

Samples TO63-R2-SB01-0-0.5 and TO63-R2-SB01-0-0.5 Dup and samples TO63-R1-SB01-0-0.5 and TO63-R1-SB01-0-0.5Dup (from SDG K2502499) were identified as field duplicates. No gasoline range organics were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD
	TO63-R2-SB01-0-0.5	TO63-R2-SB01-0-0.5 Dup	
Gasoline range organics	1.1	1.1	0

Compound	Concentration (mg/Kg)		RPD
	TO63-R1-SB01-0-0.5	TO63-R1-SB01-0-0.5Dup	
Gasoline range organics	2.4U	1.0	200

X. Field Blanks

No field blanks were identified in this SDG.

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Data Qualification Summary - SDG K2502497

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG K2502497

SDG	Sample	Compound	Modified Final Concentration	A or P
K2502497	TO63-R2-SB04-0-0.5	Gasoline range organics	2.5U mg/Kg	A
K2502497	TO63-R2-SB04-3-4	Gasoline range organics	5.1U mg/Kg	A
K2502497	TO63-R2-SB01-0-0.5	Gasoline range organics	3.4U mg/Kg	A
K2502497	TO63-R2-SB01-0-0.5 Dup	Gasoline range organics	3.0U mg/Kg	A
K2502497	TO63-R2-SB01-1-2	Gasoline range organics	4.7U mg/Kg	A
K2502497	TO63-R1-SB04-0-0.5	Gasoline range organics	2.9U mg/Kg	A
K2502497	TO63-R1-SB04-4-5	Gasoline range organics	4.9U mg/Kg	A
K2502497	TO63-R1-SB03-0-0.5	Gasoline range organics	2.7U mg/Kg	A
K2502497	TO63-R1-SB03-4-5	Gasoline range organics	4.0U mg/Kg	A
K2502497	TO63-R4-SB04-4-5	Gasoline range organics	4.6U mg/Kg	A
K2502497	TO63-R5-SB04-5-6	Gasoline range organics	4.3U mg/Kg	A
K2502497	TO63-R5-SB02-3-4	Gasoline range organics	4.8U mg/Kg	A
K2502497	TO63-R5-SB01-0-0.5	Gasoline range organics	2.8U mg/Kg	A
K2502497	TO63-R5-SB03-0-0.5	Gasoline range organics	2.5U mg/Kg	A
K2502497	TO63-R2-SB03-0-0.5	Gasoline range organics	3.2U mg/Kg	A
K2502497	TO63-R2-SB02-0-0.5	Gasoline range organics	4.2U mg/Kg	A

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB04-0-0.5
Lab Code: K2502497-001
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	0.89	J	2.5	0.81	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	81	25-133	04/11/05	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB04-3-4
Lab Code: K2502497-002
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.8	J	5.1	1.3	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	58	25-133	04/11/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB01-0-0.5
Lab Code: K2502497-003
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J 3,44	3.4	1.1	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	85	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB01-0-0.5 DUP
Lab Code: K2502497-004
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J	3.0	1.1	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	78	25-133	04/11/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB01-1-2
Lab Code: K2502497-005
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.4	J	4.7u	4.7	1.1	1	04/08/05	04/11/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	69	25-133	04/11/05	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R1-SB04-0-0.5
Lab Code: K2502497-006
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J	2.9	0.81	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	84	25-133	04/11/05	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R1-SB04-4-5
Lab Code: K2502497-007
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.5	J	4.94	4.9	1.3	1	04/08/05	04/11/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	65	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R1-SB01-0-0.5
Lab Code: K2502497-008
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.4	0.80	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	75	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R1-SB03-0-0.5
Lab Code: K2502497-009
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J	2.74	2.7	0.88	1	04/08/05	04/11/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	77	25-133	04/11/05	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R1-SB03-4-5
Lab Code: K2502497-010
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.2	J	4.0	1.2	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	61	25-133	04/11/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB04-0-0.5
Lab Code: K2502497-011
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.2	0.81	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	76	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB04-4-5
Lab Code: K2502497-012
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.4	J	4.6	1.2	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	74	25-133	04/11/05	Acceptable

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R5-SB04-0-0.5
Lab Code: K2502497-013
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.3	0.80	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	78	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R5-SB04-5-6
Lab Code: K2502497-014
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.6	J	4.3 u	4.3	1.3	1	04/08/05	04/11/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	71	25-133	04/11/05	Acceptable

Comments: _____

6/17/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R5-SB02-0-0.5
Lab Code: K2502497-015
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.4	0.81	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	80	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R5-SB02-3-4
Lab Code: K2502497-016
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.5	J 4.8u	4.8	1.3	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	71	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R5-SB01-0.0.5
Lab Code: K2502497-017
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	0.91	J 2.84	2.8	0.88	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	73	25-133	04/11/05	Acceptable

Comments: _____

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005


Gasoline Range Organics

Sample Name: TO63-R5-SB03-0.0.5
Lab Code: K2502497-018
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	0.84	J 2.54	2.5	0.78	1	04/08/05	04/11/05	KWG0505640	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	76	25-133	04/11/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

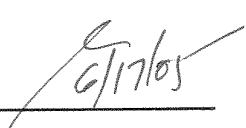
Gasoline Range Organics

Sample Name: TO63-R2-SB03-0.0.5
Lab Code: K2502497-019
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.3	J	3.2u	3.2	1.1	1	04/08/05	04/11/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	71	25-133	04/11/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502497
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R2-SB02-0.0.5
Lab Code: K2502497-020
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.5	J	4.2u	4.2	1.2	1	04/08/05	04/12/05	KWG0505640

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	59	25-133	04/12/05	Acceptable

Comments: _____

LDC #: 13575A7

SDG #: K2502497

Laboratory: Columbia Analytical Services

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6/13/05

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	7.00 & 1.00 ✓
III.	Blanks	SW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LC9
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D = 3 + 4. 8 + T063-R1-SB01-0-0.5 Dup (KX0249)
X.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples:

1	TO63-R2-SB04-0-0.5	11	TO63-R4-SB04-0-0.5	21	TO63-R2-SB02-0-0.5MS	31	
2	TO63-R2-SB04-3-4	12	TO63-R4-SB04-4-5	22	TO63-R2-SB02-0-0.5MSD	32	
3	TO63-R2-SB01-0-0.5	13	TO63-R5-SB04-0-0.5	23	KN 60505640-4	33	
4	TO63-R2-SB01-0-0.5 Dup	14	TO63-R5-SB04-5-6	24		34	
5	TO63-R2-SB01-1-2	15	TO63-R5-SB02-0-0.5	25		35	
6	TO63-R1-SB04-0-0.5	16	TO63-R5-SB02-3-4	26		36	
7	TO63-R1-SB04-4-5	17	TO63 R5 SB01 0 0.5	27		37	
8	TO63-R1-SB01-0-0.5	18	TO63-R5-SB03-0-0.5	28		38	
9	TO63-R1-SB03-0-0.5	19	TO63-R2-SB03-0-0.5	29		39	
10	TO63-R1-SB03-4-5	20	TO63-R2-SB02-0-0.5	30		40	

Notes: _____

VALIDATION FINDINGS WORKSHEET

Blanks

METHOD: ✓ GC HPLC

Questions see qualifications below for all questions answered "N": Not applicable questions are identified as "N/A".

10,000 500 quadrats	✓	N	N/A	Were all samples associated with a given method blank?
---------------------	---	---	-----	--

	I	N	N/A
Were all samples analyzed using the same method?	Y	N	N/A
Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?	Y	N	N/A

Y	N	N/A
---	---	-----

✓	N	N/A	Were any contaminants found in the method blanks? If yes, please see findings below.
---	---	-----	--

Level IV/D Only

Level 100 Only
 (Gasoline and aromatics only) Was a method blank analyzed with each 24 hour batch?
 Y N N/A

✓	N/A	N/A	Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?
---	-----	-----	--

Associated samples:

Blank extraction date: _____
Blank analysis date: 4/11/05

Conc. units: ms/kS

[illegible]

Blank extraction date: _____
Blank analysis date: _____
Associated samples: W

Blank extraction date: Blank analysis date:

Blank analysis date: _____

Associated samples: _____

[illegible]

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Were field duplicate pairs identified in this SDG?

Were target compounds detected in the field duplicate pairs?

[illegible][illegible]

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 6, 2005

LDC Report Date: June 14, 2005

Matrix: Soil

Parameters: Gasoline Range Organics

Validation Level: NFESC Level III

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502499

Sample Identification

TO63-R1-SB02-0-0.5

TO63-R1-SB01-0-0.5Dup

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
KWG0505639-4	4/14/05	Gasoline range organics	0.94 mg/Kg	All samples in SDG K2502499

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-R1-SB02-0-0.5	Gasoline range organics	1.1 mg/Kg	3.3U mg/Kg
TO63-R1-SB01-0-0.5Dup	Gasoline range organics	1.0 mg/Kg	3.3U mg/Kg

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

c Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

Raw data were not reviewed for this SDG.

VI. Compound Quantitation and CRQLs

Raw data were not reviewed for this SDG.

VII. System Performance

Raw data were not reviewed for this SDG.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

IX. Field Duplicates

Samples TO63-R1-SB01-0-0.5Dup and TO63-R1-SB01-0-0.5 (from SDG K2502497) were identified as field duplicates. No gasoline range organics were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD
	TO63-R5-SB03-0-0.5Dup	TO63-R5-SB03-0-0.5	
Gasoline range organics	1.0	2.4U	200

X. Field Blanks

No field blanks were identified in this SDG.

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Data Qualification Summary - SDG K2502499

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG K2502499

SDG	Sample	Compound	Modified Final Concentration	A or P
K2502499	TO63-R1-SB02-0-0.5	Gasoline range organics	3.3U mg/Kg	A
K2502499	TO63-R1-SB01-0-0.5Dup	Gasoline range organics	3.3U mg/Kg	A

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502499
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: T063-R1-SB02-0-0.5
Lab Code: K2502499-011
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J	3.3	0.83	1	04/08/05	04/14/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	70	25-133	04/14/05	Acceptable

Comments: 

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502499
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: T063-R1-SB01-0-0.5 DUP
Lab Code: K2502499-012
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.0	J	3.3 u	3.3	0.90	1	04/08/05	04/14/05	KWG0505639

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	75	25-133	04/14/05	Acceptable

Comments:

LDC #: 13575B7 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: K2502499 Level III
 Laboratory: Columbia Analytical Services

Date: 4/13/05
 Page: 1 of 1
 Reviewer: [Signature]
 2nd Reviewer: [Signature]

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/16/05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	7.7 & 10V
III.	Blanks	W	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N	client specified
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	W	D = HZ 2+T063-R1-SB01-0-0.5 (KX50249T)
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
 N = Not provided/applicable R = Rinsate TB = Trip blank
 SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	TO63-R1-SB02-0-0.5	11	KW#0505639-4	21		31	
2	TO63-R1-SB01-0-0.5Dup	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: _____

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA
Collection Date: April 6, 2005
LDC Report Date: June 14, 2005
Matrix: Soil
Parameters: Gasoline Range Organics
Validation Level: NFESC Level III & IV
Laboratory: Columbia Analytical Services, Inc.
Sample Delivery Group (SDG): K2502505

Sample Identification

TO63-R3-SB04-0-0.5
TO63-R3-SB04-2-3**
TO63-R3-SB01-0-0.5
TO63-R3-SB01-4-5
TO63-R3-SB02-0-0.5
TO63-R3-SB03-0-0.5**
TO63-R4-SB03-0-0.5
TO63-R4-SB03-3-4
TO63-R4-SB02-0-0.5
TO63-R4-SB01-0-0.5**
TO63-R4-SB01-0-0.5MS
TO63-R4-SB01-0-0.5MSD

**Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 12 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015 for Gasoline Range Organics.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

a. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0% .

b. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 15.0% for all compounds.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No gasoline range organic contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
KWG0505639-4	4/14/05	Gasoline range organics	0.94 mg/Kg	All samples in SDG K2502505

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-R3-SB04-2-3**	Gasoline range organics	1.6 mg/Kg	5.5U mg/Kg
TO63-R3-SB01-0-0.5	Gasoline range organics	1.1 mg/Kg	3.8U mg/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
TO63-R3-SB01-4-5	Gasoline range organics	0.83 mg/Kg	2.6U mg/Kg

IV. Accuracy and Precision Data

a. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

b. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

c. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

V. Target Compound Identification

All target compound identifications were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VI. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VII. System Performance

The system performance was within validation criteria for samples on which a NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

VIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Data Qualification Summary - SDG K2502505

No Sample Data Qualified in this SDG

Ballfields Parcels at DoDHF Novato, CA
Gasoline Range Organics - Laboratory Blank Data Qualification Summary - SDG K2502505

SDG	Sample	Compound	Modified Final Concentration	A or P
K2502505	TO63-R3-SB04-2-3**	Gasoline range organics	5.5U mg/Kg	A
K2502505	TO63-R3-SB01-0-0.5	Gasoline range organics	3.8U mg/Kg	A
K2502505	TO63-R3-SB01-4-5	Gasoline range organics	2.6U mg/Kg	A

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB04-0-0.5
Lab Code: K2502505-001
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.3	0.81	1	04/08/05	04/14/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	69	25-133	04/14/05	Acceptable

Comments: _____

*g
6/19/05*

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB04-2-3
Lab Code: K2502505-002
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.6	J	5.54	5.5	1.3	1	04/08/05	04/14/05	KWG0505639

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	56	25-133	04/14/05	Acceptable

Comments: _____

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB01-0-0.5
Lab Code: K2502505-003
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	1.1	J	3,84	3.8	1.0	1	04/08/05	04/14/05	KWG0505639

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	64	25-133	04/14/05	Acceptable

Comments: _____

6/14/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB01-4-5
Lab Code: K2502505-004
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	0.83	J 2.6 u	2.6	0.82	1	04/08/05	04/14/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	69	25-133	04/14/05	Acceptable

Comments:

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB02-0-0.5
Lab Code: K2502505-005
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.4	0.81	1	04/08/05	04/14/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	69	25-133	04/14/05	Acceptable

Comments: _____

Handwritten signature: Ghalos

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R3-SB03-0-0.5
Lab Code: K2502505-006
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND U	2.3	0.85	1	04/08/05	04/19/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	80	25-133	04/19/05	Acceptable

Comments: _____

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB03-0-0.5
Lab Code: K2502505-007
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.3	0.77	1	04/08/05	04/19/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	73	25-133	04/19/05	Acceptable

Comments: _____

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB03-3-4
Lab Code: K2502505-008
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	4.4	1.2	1	04/08/05	04/19/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	73	25-133	04/19/05	Acceptable

Comments: _____

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB02-0-0.5
Lab Code: K2502505-009
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.6	0.79	1	04/08/05	04/19/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	85	25-133	04/19/05	Acceptable

Comments: _____

6/19/05

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063
Sample Matrix: Soil

Service Request: K2502505
Date Collected: 04/06/2005
Date Received: 04/07/2005

Gasoline Range Organics

Sample Name: TO63-R4-SB01-0-0.5
Lab Code: K2502505-010
Extraction Method: EPA 5035/5030B
Analysis Method: 8015B

Units: mg/Kg
Basis: Dry
Level: Med

Analyte Name	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Gasoline Range Organics (GRO)	ND	U	2.4	0.77	1	04/08/05	04/19/05	KWG0505639	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
4-Bromofluorobenzene	81	25-133	04/19/05	Acceptable

Comments: _____

6/19/05

LDC #: 13575C7

VALIDATION COMPLETENESS WORKSHEET

SDG #: K2502505

Level III/IV

Laboratory: Columbia Analytical Services

Date: 6/13/05

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC Gasoline Range Organics (EPA SW 846 Method 8015)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/05
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	2.0 A TCV
III.	Blanks	TW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LOS
V.	Target compound identification	A	Not reviewed for Level III validation.
VI.	Compound Quantitation and CRQLs	A	Not reviewed for Level III validation.
VII.	System Performance	A	Not reviewed for Level III validation.
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	TO63-R3-SB04-0-0.5	11	TO63-R4-SB01-0-0.5MS	21		31	
2	TO63-R3-SB04-2-3**	12	TO63-R4-SB01-0-0.5MSD	22		32	
3	TO63-R3-SB01-0-0.5	13	KN40505639-4	23		33	
4	TO63-R3-SB01-4-5	14		24		34	
5	TO63-R3-SB02-0-0.5	15		25		35	
6	TO63-R3-SB03-0-0.5**	16		26		36	
7	TO63-R4-SB03-0-0.5	17		27		37	
8	TO63-R4-SB03-3-4	18		28		38	
9	TO63-R4-SB02-0-0.5	19		29		39	
10	TO63-R4-SB01-0-0.5**	20		30		40	

Notes: _____

LDC #: 1357507
SDG #: K2502505

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: g

Method: ☒ GC ☐ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) < 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IV. Continuing calibration				
What type of continuing calibration calculation was performed? <input checked="" type="checkbox"/> %D or %R	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) < 15% or percent recoveries 85-115%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
V. Blanks				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 13575C7
SDG #: K250 2505

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: 9
2nd Reviewer: 9

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were the performance evaluation (PE) samples within the acceptance limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XII. System performance				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIV. Field duplicates				
Were field duplicate pairs identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field duplicates?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
XV. Field blanks				
Were field blanks identified in this SDG?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

IDC #13575e7

SDG #: 4202505

METHOD: ☒ GC ☐ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

	Y	N	N/A	Were all samples associated with a given method blank?
(9)				

Was a method blank performed for each matrix and whenever a sample extraction procedure was performed?

Y/N	N/A	Was a method blank performed with each extraction batch?
X	N/A	

Contaminant	Method	Findings
Asbestos	Asbestos Survey	None detected
Lead	Lead Paint Analysis	None detected
PCBs	PCB Analysis	None detected
Mercury	Mercury Analysis	None detected
Other Contaminants	Other Contaminant Analysis	None detected

Level IV/D Only

Y	N	N/A	(Gasoline and aromatics only) Was a method blank analyzed with each 24 hour batch?
---	---	-----	--

(Y X	N/A	Was a method blank analyzed for each analytical / extraction batch of ≤20 samples?
------	-----	--

Blank extraction date: Blank analysis date: 4/14/05
Associated samples:

Blank extraction date: _____
Conc units: *M5ks*

[illegible]

Blank extraction date: _____
Blank analysis date: _____
Associated samples: _____

Conc. units: _____
 Exam extension: _____[illegible]

ALL CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 13575c7
SDG #: K-200-2005

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: [Signature]
2nd Reviewer: [Signature]

METHOD: GC ✓ HPLC

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = $100 * (S/X)$
A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
				CF (100 std)	CF (100 std)	Average CF (Initial)	Average CF (Initial)	%RSD	%RSD
1	10A2	3/31/05	GRO	8730	8730	8150	8150	4.5	4.5
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 1357507
SDG #: K2502505

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: 9

METHOD: GC ☒ HPLC ☐

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = $100 \times (\text{ave. CF} - \text{CF}) / \text{ave. CF}$ Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(1cal)/ CCV Conc.	Reported		Recalculated	
					CF/Conc. CCV	%D	CF/Conc. CCV	%D
1	0414R005	4/14/05	GRD	8150	7980	2	7980	2
2	0414R003	4/19/05	GRD	8150	8260	1	8260	1
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 13575C7
SDG #: K2502505

METHOD: ☒ GC ☐ HPLC

VALIDATION FINDINGS WORKSHEET

Surrogate Results Verification

Page: 1 of 1
Reviewer: 4
2nd reviewer: 9

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: $SF/SS \times 100$

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
BFB	DB-625	50	27.77	56	56	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference

LDC #: 1357527

SDG #: K2502505

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: ☒ GC ☐ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

$$\% \text{Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$$

Where SSC = Spiked sample concentration

SA = Spike added

SC = Sample concentration

$$\text{RPD} = ((\text{SSCLCS} - \text{SSCLCSD}) * 2) / (\text{SSCLCS} + \text{SSCLCSD}) * 100$$

LCS = Laboratory Control Sample

LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: K2502505-3

Compound	Spike Added (mg/L)		Sample Conc. (mg/L)	Spike Sample Concentration (mg/L)		LCS		LCSD		Percent Recovery		LCS/LCSD	
	LCS	LCSD		LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	10	NA	---	9.98	NA	100	100						
Diesel (8015)													
Benzene (8021B)													
Methane (RSK-175)													
2,4-D (8151)													
Diroseb (8151)													
Naphthalene (8310)													
Anthracene (8310)													
HMX (8330)													
2,4,6-Trinitrotoluene (8330)													

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

METHOD: ☒ GC ☐ HPLC

Y	N	N/A
Y	N	N/A

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor

In the initial calibration

%S = Percent Solid

[illegible]

SAMP_CALEw.wpd